

(30 pts) Approx. 2 days

The final part of our unit has us look at how mathematics is done in Java, and what we can do with it! Certain functions are built naturally into the Java language like addition (+), subtraction (-), division (/), multiplication (\*), and mod (%). Fancier things like exponents and square roots require the use of special methods built into a special class of methods called the **Math** class. Here, we'll learn how Java handles different mathematical operations and then use them to make a cool custom calculator for ourselves.

1. Watch the introductory videos about math in Java. To do special operations in Java like square roots, exponents, or absolute value, we have to use a special class called the **Math** class. As it turns out, the Math class is really easy to use and has all the functionality we could ever really want in an all-inclusive math resource. Take a full page of notes on the Math class and what we can do with it!
2. Now, think about your other classes. Pick one that has multiple challenging equations in it, and identify 3 different equations you have to use in that class. For example, if I was in Geometry/Trigonometry, I might want to use the Pythagorean Theorem, Law of Sines, and Law of Cosines as my three equations.
3. Once you've chosen your class and the corresponding equations, build a program that can do those calculations for you! Keep the following in mind:
  - a. Your program should have a simple menu to let the user pick which equation to apply
  - b. Your program can be simple in that it only needs to solve for one variable
  - c. Your program should be user-friendly and easy to input numbers into
  - d. Your program will need to be restarted every time you want to solve the equation another time
4. Finally, wrap up the unit with a 1-page writing assignment in your engineering notebook. Write a page describing what you think about these basic Java concepts. How did the tasks from this unit compare to those from Jeroo? What kinds of simple programs can you imagine making with what you already know? Who would use them? What questions do you still have about Java programming, and what are you excited for next?
5. Have Mr. Benshoof check your working calculator when you're finished, and check out other people's calculators to see what they did!

Part 3: Tasks	5 points	4-3 points	2-1-0 points
 Math in Java Notes	+ You took a full page of notes on Java's Math class + Your notes include details on how to use a few of the methods in the Math class	- You took less than a full page of notes	- Your notes are lacking or missing
	<b>15-10 points</b>	<b>9-5 points</b>	<b>4-0 points</b>
 Create Your Own Calculator	+ You created a functioning 3-equation calculator + Your calculator follows the parameters outlined above	- Your calculator solves 1 equation - Your calculator is missing some parts	- Your calculator is significantly lacking/missing
	<b>10-8 points</b>	<b>7-4 points</b>	<b>3-0 points</b>
 Log 2: <i>Beginning Java</i>	+ You wrote a complete page in your engineering notebook + Your response addresses all the questions in the prompt provided	- You wrote less than a full page	- You wrote less than half a page
 Checkoff from Benshoof	+ Mr. Benshoof got to see your calculator work successfully!	N/A	N/A

